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Nature and Art.

WRITING recently in the *Revue Horticole*, Monsieur Edouard André, the most distinguished living representative of the art of gardening in Europe, had occasion to refer to the times, before the middle of our century, when the school represented by Thouin, Le Breton and the Buehlers was dominant in France. "In those times," he said, "much attention was rightly paid to the harmony of the preparatory plan, but it was not the sole preoccupation of designers of gardens, while at present they sometimes seem more solicitous about the effect of their composition as it will show upon paper than as it will show upon the ground. Formerly the search for beautiful results was made, often through patiently extended experiments, upon the spot itself, and not in the office; and this method was the right one. The excessive care now devoted to the theoretical drawing, which so often leads to disillusions in the actual work, must surely disappear in the near future. It will be understood that the tracing of paths, which to-day is thought to constitute in itself the art of garden-design, is only a portion of this art, and not the most important portion. It will be felt that, above all, varied scenes must be created within an harmonious whole, and that the means of approach to these scenes should be simply accessory."

These words should be laid to heart by American landscape-gardeners especially, for the temptations toward undue dependence upon office study are even greater in this country than elsewhere. We have as yet very few landscape-artists of recognized learning, taste and skill, and the services of these are apt to be required, not merely in the vicinity of their homes, but in the most distant parts of the country. And, while the vast size of this country makes frequent visits to the scene of work, or a prolonged residence there peculiarly difficult, on the other hand it makes them peculiarly needful; for within the United States localities differ so radically in conformation, soil, climate and vegetation, and consequently in æsthetic as well as practical character, that the experience gained in one region may be all but wholly useless in another.

It is much easier, much more comfortable, much more speedy, to elaborate a scheme of treatment in the office from a topographical survey, than carefully and patiently to study every feature and suggestion which Nature presents, and then as carefully and patiently to adapt one's own features and details to hers. An added temptation to work in this way lies in the fact that the artist may sometimes persuade himself that it gives him greater freedom, permits him to be more truly creative, more original. And thus allowing himself partially to neglect the requirements of his special problem, he gradually comes to think of his drawings as independent works of art, as things to be made attractive for their own sakes. We often note the same tendency among architects. They, too, are often led astray by the ease with which a drawing may be made attractive if the stern requirements of actual construction are partially forgotten. And the result is the same in both cases. As Monsieur André says, it is almost sure to be disillusion. A building which, in the perspective drawing, has its color falsified, its effects of light and shade over-accented, its details indicated in a manner foreign to the aspect they will wear when executed, and its surroundings supplied from the draughtsman's imagination, cannot but disappoint its owner when it is transferred from paper to brick and stone. And a pleasure-ground, the lines of which are harmonious and beautiful on paper, may be just as disappointing if these lines have not been drawn with the most careful reference to every natural detail upon the special site in question.

There is no such thing—there can be no such thing—as a theoretically good design for an informal pleasure-ground; for no two sites are exactly alike, and excellence in art always consists in appropriateness—in respect for the conditions of the special problem presented to the artist. But a designer cannot help working theoretically if he transfers to his office much of that labor of contemplation, examination, imagination, and decision upon features large and small, which is involved in the establishment of his plan upon paper. Of course, this plan must eventually be drawn in the office; but it should be fixed in the artist's head while his eyes are studying Nature's preparatory, controlling scheme; and even after its main features are executed upon the soil, perpetual fresh consideration and superintendence is required if details of planting are to be satisfactorily carried out. No man's imagination is vigorous and true enough to foresee, in any large scheme, precisely what the effect of all its parts will be, or how they may necessitate modifications in the proposed arrangement of minor features and details. Perpetual study upon the spot is needful until the final touches have been given to his work. A proof of the truth of these words may be found in many of our public pleasure-grounds where the beauty of the main conception is disguised, if not deformed, by lack of taste in planting, and especially in the minor details of planting.

It is natural that, as Monsieur André notes, the habit of undue dependence upon office study should have led to the habit of considering paths and drives as the chief features of a problem; for these are the features which "make the most show" in a drawing, and the lines of which, if harmoniously disposed on paper, do most to suggest an attractive, artistic scheme. It is, however, true that they are not the most important things in the completed work. They are seen as a whole on paper, but are usually seen only bit by bit when one traverses them, and thus the careful balancing and opposition of their lines is often labor wasted even when it is not actually labor wrongfully bestowed. The main thing in the creation of a pleasure-ground is, as Monsieur André says, the creation of beautiful scenes. Paths and drives are merely the means of approach to these—devices to make their beauty accessible, and to display it well from all desirable points of view.

Nowhere could a better instance of the artistic disposition, the right relative importance, of paths and drives be found than in our Central Park. Here we think little about

them; we think only of the varying succession of beautiful prospects which they open up to us, and yet, when our attention is called to them, we realize that they are very gracefully drawn and disposed. Nevertheless, many plans look more harmonious and attractive upon paper than the plan of Central Park. Without a clearer knowledge of the conformation and the planting of its different parts than paper can convey to the average eye, one might not think it remarkable for artistic excellence. But it is artistically remarkable just because it was not elaborated with any thought of its effect on paper.

In view of the great beauty of this park, it is instructive to know that none was ever created in a less theoretical, in a more practical way—less in the office, more in the open air. The design of Messrs. Olmsted and Vaux as first drawn and accepted was very different from their design as we see it realized to-day. The former was, of course, adapted, after careful study, to the very peculiar and difficult site in view. But during the long years while the actual work progressed it was perpetually modified in deference to the minuter knowledge gained by its creators. They lived on the borders of the park and studied its face as a portrait painter studies the face of his sitter. Day by day they reconsidered and recast parts of their scheme, and day by day they reviewed and revised their proposed emendations on the site itself. Thus a great work of art was achieved, and thus only can a great work of landscape art ever be achieved—"through patiently extended experiments upon the spot itself."

These facts imply, of course, that there is great danger in attempting too much work at once. It is impossible that Central Park could have been so good had its creators been busy at the same time with similar undertakings elsewhere. The success of the Chicago Fair Grounds is another illustration in point. Mr. Olmsted's partner, Mr. Codman, lived near them for many months, devoting himself to every detail of their preparation, and also to the work of gathering and propagating the materials with which they were to be planted. And thus it must always be. An architect's design, if thoroughly studied and carefully put on paper, may be adequately carried out by some one else, in the security that no changes will be required. But a landscape-gardener's mind must be continually at work, his eye must be upon his plan, his hand must be active in its amelioration, until the last of his work upon the soil is done. And even then, as we have often pointed out before, his superintendence will be needed for many years if the eventual aspect of his pleasure-ground is to fulfill his intentions with purity and completeness.

Botanical Notes from Texas.—XXIII.

GALVESTON ISLAND is a reef lying off the Gulf coast of south-eastern Texas. The trend of the mainland gives to the island a north-easterly and a south-westerly direction. The extreme length of the island is about thirty miles, and it has a varying width of from one to three miles. Its highest elevation is about ten feet. There are depressions of its surface which are lower than the level of the Gulf, and these are filled with sea-water. The ninety-fifth meridian crosses the western portion of the island, and the twenty-ninth parallel runs a little south of it. The thermal mean for the year eighteen hundred and ninety-three was sixty-four and six-tenths degrees. The total precipitation for the same year was about forty inches. The city of Galveston is built at the extreme south-east corner of the island, and it is the principal seaport of Texas. A chief attraction of Galveston is the long stretch of nearly straight wide beach, which the heavy waves of the Gulf have pounded into the smoothness and hardness of pavement. A walk or a ride along it at any time is a source of pleasure.

About fourteen miles down the island coast is a grove of Live Oak trees, known as Lafitte's Grove, for there the noted Gulf rover, Lafitte, had his base of operations and of supplies. With the exception of this grove, it is said there are no native trees upon the island, but many species of trees of southern nativity readily grow here and are largely planted for shade or ornament. They have upon the island an Oleander Park, and thousands of trees of that species adorn the streets and lawns of the city. Coast Cedar (Tamarix Gallica) is also largely planted as a street-tree, oftener in yards, and Jerusalem Thorn (Parkinsonia aculeata) is not uncommon in the city. Barbadoes Flower Fence (Cæsalpinia pulcherrima) is frequently seen, and sometimes the famous Silk-tree (Albizzia Julibrissin), the handsomest of all our native or naturalized trees of the Pea family. For abundant and rich perfume, Huisache (Acacia Farnesiana) excels them all. The Silk-tree, like many other Asiatic species, as the China-tree (Melia Azedarach), Ailantus, Sterculia, Tallow-tree (Stillingia sebifera), Crape Myrtle (Lagerstrœmia Indica), makes itself quite at home in all the Gulf states. Acacia filicina, probably the most widely distributed species of that genus, has also found a home here.

A Solanum (S. sisymbrifolium), of peculiar and not unhandsome habit, but armed with sharp and cruel spines, is occasionally to be seen along the railways. It is very rare in Texas, coming up from farther south. Its congeners, S. nigrum, S. Torreyi and S. elæagnifolium, "Triompillo," have also immigrated to the Island City.

The Coast Evening Primrose (Œnothera Drummondii) now (April 11th) displays nightly its large yellow flowers to walkers on the beach. Œ. linifolia, with the smallest flowers of any of the species, is very common on the drier portions of the island. From here it extends easterly to Georgia and northward to Missouri and Kansas. Two or three other species of the genus are found within the city limits. Tissa marina, with small pink flowers, is common in saline soils, and several other low-growing Pinks abound. Melilotus Indica, very like M. officinalis, but less tall and with little fragrance, is common in the city.

I observed four species of Clover (Trifolium) on the island, T. Carolinianum, T. Begariense, T. repens and T. pratense. Blue Bonnets, as Texans call Lupinus subcarnosus, has located here, moving over from the mainland. This plant thrives without seeming injury from salty air and salty soil. Its fleshy leaves indicate that the species originated where salt breezes could reach it. Other genera of the Pea family represented on the island by one or more species, and in sight, are Galactia, Rhynchosia, Schrankia, Baptisia, Vicia, Desmanthus, Sesbania and the common Yellow Locust (Robinia). The peculiar prostrate Crucifer, Senebiera didyma, is very common in Galveston. The abundant volatile oil that this plant emits is almost fetid. Its disagreeable odor, its fleshy finely cut leaves and twin pods lead to its easy recognition. It seems to thrive best when ill-treated, being commonest in well-trodden places. The species is very abundant in the coast country, and inland to Little Rock, Arkansas. Cissus stans grows in Galveston, and C. incisa; the latter species is called Marine Ivy by some florists. Two species of odd little Water-cups (Hydrocotyle umbellata and its cosmopolitan cousin, H. Asiatica) are here. A Horn Poppy (Argemone) displays everywhere its large white flowers to the vernal breezes. I have not seen in Texas any form of Argemone with yellow flowers. Lechea tenuifolia, Verbena Aubletia and Borrichia frutescens are abundant.

During a long stroll down the island I saw an attractive Gentianaceous plant, Sabbatia campestris, growing commonly on the prairie. It grows northward to Kansas. There is a form of it with white flowers, known in this state as Texas Star. A little Bartonia, distantly related to Texas Star, grows near it. The southern Dewberry, so common over most of the state, is here in force. The species deserves more credit for the quantity and value of the fruit that it yields than has been given it in these notes. The gathering and sale of its fruit in the month of May gives it a commercial value of some importance. A fruit-dealer in a near-by town informed me that he expected to buy this season 50,000 quarts of dewberries, all produced from wild plants. The business of gathering the fruit is largely in the hands of negroes, and it affords them an income at a time when it is appreciated.

Monanthochloa littoralis, a low, creeping, maritime grass, is common along the Gulf coast from Florida to Mexico. It bears numerous short rigid leaves and dicœcious, glumeless flowers. The stems are woody at the base and not more than five to eight inches tall. Bulbilis dactyloides (Buchloë dactyloides), the well-known Buffalo Grass, is not uncommon on the island along the railways. The peculiar, handsome and not common little yellow-flowered Sisyrinchium, S. Thurowi, is quite abundant on the island within the city limits and along South Galveston Railway. During a visit to Quintana earlier in the season I found the rare little Fern ally, Ophioglossum crotalophoroides (O. bulbosum, Mx.), growing within reach of high tide.

In Austin County I happily ran across the rare and little-known Thalictrum debile. This low, weak-stemmed and hardly erect species appears to have been discovered by Buckley in Wilcox County, Alabama. Elihu Hall also found it in eastern Texas. I do not find to this time that any other botanist has found the plant. It was abundant when I saw it, and in fruit as well as in flower. Aristolochia reticulata grows in Pine-forests near Bellville, an extreme south-western station for that species.

The small southern Clover, Trifolium Bigariense, is very common throughout central Texas. On the black lands it forms quite an important part of the early-spring pasturage.

At Hitchcock, Alvin and at other points on the mainland near Galveston, and Houston and at other localities along the coast, quite extensive experiments are being made to test the adaptability of this region to general fruit-culture. As the tourist rides over the wide stretches of prairie about Houston, still largely a cattle country, he wonders that during nearly a half-century of statehood such a problem has not been fully settled. Texas has now a horticultural society, composed of efficient men and women, able to give reliable information about fruit-growing in this state.

Eagle Pass, Texas. *E. N. Plank.*

Foreign Correspondence.

London Letter.

THE weather here is unfavorable for gardens. Cold, heavy rains are frequent, and bright sunshine is as rare now as in October. This has been so for the past six weeks, and, consequently, the outlook for agriculturists and horticulturists is not promising. Lawns certainly are brighter and trees greener than is usual at this time of year, but vegetation generally looks far too succulent to be safe. On the other hand, some plants are enjoying the extra amount of moisture; for instance, bulbous plants, which, at Kew at any rate, are flowering well. Liliums, Tigridias, Crocosmias, Gladioluses, and Watsonias out-of-doors, Hymenocallis, Hæmanthus, Griffinia and other Cape bulbs, indoors, are better this year than usual. I propose to devote my letter this week to some of the most noteworthy of these now flowering at Kew.

CRINUM POWELLI ALBUM.—This is the best of all Crinums that can be grown permanently out-of-doors in the warmer parts of England, and there are few, if any, that surpass it among the eighty or more species that have been described. It takes time to reveal itself, a single bulb planted in a sheltered sunny border making an indifferent display for the first year or two. But if it is happy—and ordinary treatment satisfies it—offsets will be formed at the base and grow up into fine bulbs, until in about five years one may have such a grand specimen as is now in flower in a wall-border at Kew. Its leaves form a healthy cluster four feet through and a yard high, glossy green and pleasing in every sense, while the flower-scapes stand well above the leaves, and each bears an umbel of from five to ten snow-white flowers, each five inches across, with wide expanding, overlapping segments. It is a grand plant, a grand hybrid.

CRINUM MOOREI ALBUM.—I have already described this plant as we know it here, in vol. iii., p. 538, but it is so fine this year that it warrants further description. Our plant is in the large temperate house and is planted on the margin of one of the beds. It has a bulb as large as an ostrich egg and a long stem-like neck with broad, wide-spreading leaves two to three feet long. It bears two stout scapes two feet above the top of the neck and the flowers are six inches across, pure white, with graceful nodding tubes. They last a week or more, and as there are twelve in each umbel and they open in slow succession, the flowering season extends over six weeks or more. I have never seen this plant tried in the border outside, but I know that the type, C. Moorei, is hardy in the south. There is no more beautiful bulbous plant in the garden than this. It produces offsets freely.

CRINUM SCHIMPERI.—Bulbs of this very promising garden-plant have been in cultivation at Kew since 1883, when it was introduced from Abyssinia and distributed by Herr Max Leichtlin under the name of C. Abyssinicum. It was again distributed in 1889 from the Berlin Botanic Garden under its proper name, and a figure of it (a poor one) published in Regel's *Gartenflora*, t. 1309. Both the Berlin and Baden-Baden bulbs have flowered this year in an unheated frame at Kew. They have semi-erect subdistichous glaucous leaves two feet long, and a cylindrical scape eighteen inches high, bearing an umbel of six pure white flowers as large as those of C. longifolium (Capense) and very fragrant. The Kew plants were at first grown in pots in a warm house, but this treatment did not suit them. They have been planted out for the last three years against a wall in an unheated frame, from which frost is excluded in winter. C. Abyssinicum is a good distinct species not yet in cultivation.

HIPPEASTRUM BRACHYANDRUM.—This is a rare bulbous plant, but it is likely to become as common as any, as it is easily grown, seeds freely, flowers in two years from seeds, may be grown all summer in the open border and bears large, handsome trumpet-shaped flowers of attractive colors. It has only been known in cultivation four years, Kew obtaining a single bulb of it from Mr. Bartholomew, of Reading, who introduced it from south Brazil and first flowered it in 1890. Now we have it flowering in pots in the cool greenhouse and in a bed out-of-doors, besides a frame full of seedlings. This is what Mr. Baker says of it, that it has much the largest flower of all the Habranthus section of the genus, and the color is very beautiful, beginning as a pale pink, like that of Amaryllis blanda and ending as a deep blackish-red at the base of the segments. It has bulbs and leaves like those of Nerine and an erect scape a foot long, bearing a single erect flower as large as a Belladonna Lily.

GLADIOLUS PLATYPHYLLUS.—This is a remarkable species, if not a very attractive one. At Kew its leaves are fully three inches wide and eighteen inches long, while the spike, which is as thick as a man's finger, reaches to a height of four and a half feet. The flowers differ from those of G. dracocephalus in being darker and in having some blotches of purple about the base of the segments. They also differ in their arrangement on the spike, the tubes curving inward, so that the flowers are crossed over each other obliquely in front. There is another Gladiolus, now flowering at Kew for the first time, which is like G. dracocephalus in every way except that the flowers are almost olive-green, closely grained and lined with claret-purple. These dull-colored "Sword Lilies" are worth a place in the garden of those cultivators whose tastes are highly "correct."

HÆMANTHUS CARNEUS.—This deserves to be added to the list of meritorious garden Hæmanthi which I sent you a few weeks ago. It is the best of the section Melicho, characterized by thick bifarious bulb-tunics, thick, fleshy leaves and spreading flowers and spathe valves. There are several well-marked varieties of it in cultivation at Kew, and they are now in flower in the Cape-house. The scapes are about a foot long, erect, compressed, pinkish and mottled, covered with soft hairs and bearing a globose head three or four inches through, formed of numerous soft pink flowers in the type, white in the variety alba. Another variety is remarkable for the deep shade of pink of its flowers. The plant thrives in a cool sunny greenhouse, and it flowers every year, the flowers lasting about a month. The species was first introduced to Kew by Masson, the Kew collector, exactly a century ago.

LYCORIS AUREA.—This handsome Chinese bulbous plant is scarcely known in English gardens, and the few who have made its acquaintance have learned to dislike it because it behaves so badly under cultivation. It is a native of China and Formosa, and is cultivated in Japan under the name of Nerine aurea. When at its best it is an attractive plant with stout Nerine-like foliage, a terete scape from a foot to two feet in length and an umbellate inflorescence, formed of bright yellow flowers three inches long, with curved crisped segments half an inch wide and decli-

nate anthers. Here we treat it as a cold-greenhouse or frame bulb, and it does badly. I now learn from a friend in Hong Kong that it grows well and flowers freely in the gardens there, resting through the hot season in spite of excessive moisture, and pushing into growth and flower in winter. He sends bulbs of it as large as Emperor Daffodils, and recommends me to grow them in the stove.

Lilium Browni, var. leucanthum.—This is a new and distinct Lily which was introduced from Yun-nan to Kew along with L. Henryi and another variety of L. Browni named chloraster by Mr. Baker. The type is well known in gardens, and is one of the handsomest of the longiflorum section of the genus. The variety chloraster differs mainly from it in having the segments colored green along the midrib inside; in other respects it is L. Browni, but a stronger grower, the stems being five feet high, and it does well under ordinary treatment. The new variety differs from all the forms of L. Browni in its short broadly lanceolate leaves, the width of its segments, their scarcely reflexed apex, the wide, almost campanulate form of the corolla, and in being milk-white outside and sulphur-yellow inside. The anthers are only one-third of an inch long. I consider this one of the best of the eastern Lilies. At present it is known only at Kew.

Liliums from Seeds.—Many species of Lilium are short-lived under cultivation, whatever may be their behavior in a wild state. To keep up the supply I would recommend all Lily-fanciers to look after the seeds and to sow some every year of those species which flower well for a year or two and then fail. The process is simple enough, all that is necessary being to insure the setting of a few fruits on the healthiest plants and to sow the seeds as soon as they are ripe in a pan or box of sandy soil, which should be placed in a frame. When the seedlings have made one leaf, prick them out in a cold frame or bed, and transplant annually, but do not let the bulbs get dry. In this way we have secured large stocks of such Liliums as L. Henryi, L. Formosanum, L. sulphureum, L. Nepalense, L. superbum and others.

London. *W. Watson.*

Entomological.

The San José Scale.

EARLY in 1894 the United States Department of Agriculture issued a special bulletin announcing the appearance of this pest in the eastern United States, and suggesting that New Jersey nurseries were to some extent responsible for its dissemination. A very complete study of affairs in New Jersey proves that this charge is, in part at least, well founded, and that, unfortunately, a large number of fruit-trees infested by the scale have been distributed.

It is matter for profound regret that this has happened, and it emphasizes a source of danger that is too little considered—that is, the nursery as a factor in the distribution of injurious insects and plant-diseases.

However, it is not to the nurseries, but to another source of danger, that I now wish to call attention. California fruit is coming into market in immense quantities and of very attractive appearance, and many of the pears are infested by this San José or Pernicious Scale, Aspidiotus perniciosus. The accompanying figure, drawn from nature for the United States Department of Agriculture, illustrates an infested fruit. It is rare that an example quite so badly infested is found on the stands, but many are not much better, and a very large proportion show a small number. I have been through the markets of Philadelphia, New York and Brooklyn, and through the main streets on which fruit-stands are most abundant and have found infested pears everywhere.

On August 15th, at the meeting of the Association of Economic Entomologists, this insect was discussed, and, to show this point, I purchased six pears from the nearest fruit-stand, and all of them were infested by the scale. They were passed around, and it was found that both male and female scales occurred on the fruit; that many of the females were full grown, and that in two cases the little yellow larvæ were crawling on the surface of the fruit. Here we have exactly the conditions which favor introduction of this insect, for, if the pear be peeled and the skin thrown anywhere near a fruit-tree of any kind, there is nothing to prevent the establishment of a colony. California fruit is sold on all trains, or often purchased at stations, and parings are thrown out of the window. While in most cases the scales perish, yet, as they are enabled to subsist on the Blackberry, the Raspberry, the Rose and other plants of this botanical family, there is a very serious margin of danger from infested fruit. I do not wish to exaggerate this danger, and the general public will not be inclined to listen to or heed warnings; but no one with a garden in which he grows fruit or berries should bring into it any California fruit, especially pears, unless assured from careful examination that no scales are present on it. The scales are easily recognizable as small, round, gray spots, surrounded by a bright red discoloration of the fruit.

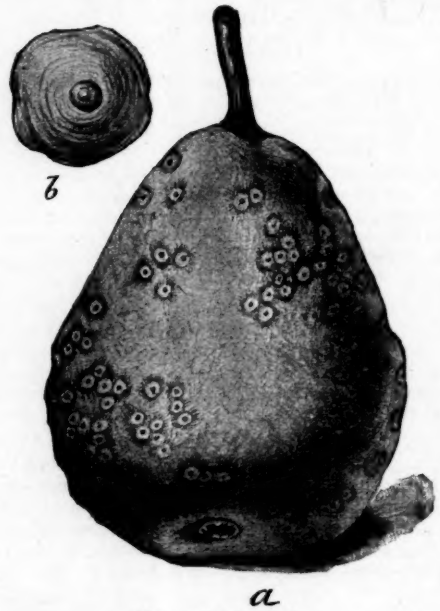

Fig. 55.—San José Scale.

a. Pear, moderately infested—natural size. *b*. Female scale—enlarged.

No danger is to be apprehended from eating the pear unpeeled and swallowing scales or insects. This is, indeed, a safe way of overcoming any danger of spreading the pest.

Rutgers College. *John B. Smith.*

New or Little-known Plants.

Spiræa longigemma.

THIS species, which in habit and arrangement of the flowers, resembles in a general way some forms of Spiræa Japonica, differs from all the species of the genus now known in its elongated lanceolate acute leaf-buds. In cultivation it is a shrub three or four feet high, with slender terete bright red-brown branchlets, marked with numerous minute lenticels, and glabrous buds of the same color, and often a quarter of an inch long. The leaves are oblong-lanceolate, acuminate, coarsely and doubly serrate, with sharp gland-tipped teeth, penniveined with about four pairs of remote primary veins connected by coarse reticulate veinlets, membranaceous, light yellow-green and pilose on the upper surface, pale blue green on the lower surface, an inch and a half to two inches long and half an inch broad, and

are borne on slender, slightly grooved red pilose petioles a quarter of an inch in length. The flowers are perfect, and are produced in compound villose-pubescent corymbs terminal on leafy branches of the year and furnished with subulate foliaceous bracts; they are borne on slender pedicels varying from one-eighth to one-half of an inch in length and bibracteolate at the apex. The calyx is dark green and puberulous, with deltoid acute entire divisions about half as long as the rotund pure white petals. The stamens are inserted on the incurved margin of the purple crenate disk, and are two or three times as long as the petals. The carpels are broadly ovoid, divergent, exserted, and pilose except at the apex, and are crowned with slender terminal persistent styles.

Spiræa longigemma was discovered on the high mountains of the province of Kansu, in north-eastern China, by the distinguished Russian traveler, Przewalski, and was first described by Maximowicz in 1879.* Later it was found in the southern part of the same province by Piasezki. It was sent to the Arnold Arboretum in 1892 from the Forest School at Munden and flowered here for the first time in June, 1893. *C. S. S.*

* *Act. Hort. Petrop.*, vi., 205.—Forbes & Hemsley, *Jour. Linn. Soc.*, xxiii., 226.—Zarbel, Die Stranchigen Spiræn der Deutschen Gärten, 57.

Fig. 56.—Spiræa longigemma.—See page 244.

Plant Notes.

Hibiscus Moscheutos.—This Swamp Rose Mallow is the most common species of the genus in this part of the United States, and is a familiar plant beside our larger rivers, and more particularly in salt-marshes along the coast. It is sometimes called the Wild Hollyhock, which is a fairly good name for it, because its flowers resemble those of a single Hollyhock in shape and appearance and the plants are not dissimilar in form. The broad, numerous leaves, smooth above and hoary beneath, contrast prettily with the showy flowers, which are rose-colored at first and then change to a paler tint. Plants with pure white flowers are not rare. Like many other species which are naturally found in low swampy ground, this Rose Mallow does well when grown in ordinary gardens, and in rich soil it reaches a height of six feet or more. After all, like certain others of our wild flowers, it never shows to quite as good advantage as it does in its native habitat. Just now the Hackensack meadows are gay with these flowers, which are singularly beautiful in the tall grass which surrounds them. Persons seeing these flowers from the car-windows of one of the many railroads which cross these meadows often mistake them for large wild Roses, an error

which testifies to the singular purity and beauty of their color.

Swainsonia galegifolia.—This Australian plant is by no means new, but it has been much neglected, in this country at least, until within a few years a white-flowered variety of it has been grown to a considerable extent for florists' use. It is well adapted for cutting, for it is almost a constant bloomer, and when the flower-spikes or the extremities of the branches are cut off, it at once throws out new shoots from below. It is of a half-scandent habit, and therefore is better with some support, and it does very well in a conservatory when trained against a wall. When well grown, the spikes of white pea-shaped flowers are three or four inches long, and a branch containing three or four of these spikes rising above the glaucous-green delicate compound leaves is very attractive. It does not seem generally known that this shrub is an excellent border plant. A plant set out in the open ground as soon as the weather becomes warm in late spring will grow rapidly, and if kept back by cutting it will become a broad and stocky plant, producing numerous flowers until frost.

Liatris pycnostachya.—It is hard to say which of the species of Liatris is the most beautiful at this season of the year, and we have selected this one simply because a vase filled with its long dense spikes of rose-purple flowers in the exhibit of Pitcher & Manda at the Florists' Convention, at Atlantic City, last week, seemed to be particularly attractive. There are many other species of these Blazing Stars, or Gay Feathers, as they are sometimes called, with long spicate or racemed heads of purple flowers, which bloom in early autumn and late summer. L. scariosa, which sometimes reaches a height of five feet, is very handsome, having larger heads than the first-named species and bright reddish scales. L. spicata begins to flower earlier in the season, and there are others, like L. graminifolia, L. elegans, and even the little L. cylindracea, which are worth growing. One objection to the Liatris is that the flowering begins at the extremity of the spike and progresses downward, so that while the lower portion of the spike is in bloom the upper portion may be dry and withered. Nevertheless, they are for the most part showy species, and deserve a place in any considerable collection of hardy perennial plants.

Quercus palustris.—We generally think of the Oak as the emblem of rugged strength, but none of our native forest-trees excel in grace of outline the Pin Oak, which is so common near this city. This is especially true of this species before it reaches its full size. The lower branches, which droop gracefully in a young tree, seem in an old one to be thrust downward in a rigid, disagreeable way, and such trees are often disfigured by dead branches in the interior of the head. Perhaps a course of systematic pruning, begun when the tree is young and carried on so as to give it a more open habit when it became old, might remedy this difficulty. The White Oak hardly attains its full measure of dignity until it is a hundred years old, and it becomes more impressive and venerable for a century or two longer. This means that we should not plant Pin Oaks to be rivals of White Oaks in the twenty-first century, but they are beautiful trees always, and we can plant them without any fear of outliving their attractiveness. Their clean glossy foliage and the long slender sprays at the extremities of the branches give them an expression of feathery lightness which is worn by no other Oak. For street-planting this is one of our most useful trees. We have often alluded to the famous avenue of Pin Oaks in Flushing, and it is to be hoped that the double row of these trees which extends up Pennsylvania Avenue, in Washington, from the Potomac, may yet be continued to the national Capitol. Some of the Oaks have a reputation for resenting removal, but a Pin Oak can be transplanted with perfect safety, since it differs from many others in having a mass of fibrous roots when young, instead of a few prong-like roots.

Cultural Department.

Basket Ferns.

HANGING baskets of Ferns are very ornamental, and there are many species and varieties suitable for this purpose, and many that need to be suspended in order to show to the fullest advantage the grace of their drooping foliage. The baskets may be of wood or wire, the former being preferable, and a compost of fibrous loam, leaf-mold, peat and coarse sand is suitable, and it should be kept as coarse as possible. The baskets must be lined with moss to keep the soil from falling through, and the moss should be carried well up to the edge of the basket, leaving it about an inch higher than the soil, so as to form a receptacle for the water. It is a great mistake to fill the basket too full of compost, as the water then runs off instead of through it.

Of the Adiantums, perhaps the two most suitable are A. amabile and A. assimile; their creeping rhizomes soon find their way through the crevices and over the entire surface of the basket and envelop it in a mass of tender green foliage. A. dolabriforme and A. ciliatum are also very suitable, producing young plants at the points of their pendent fronds, which greatly enhance their beauty. The last-named somewhat resembles A. candatum, which is also a very suitable variety, but the fronds are larger and more deeply cut and fringed.

Asplenium flabellifolium, A. macrophyllum and A. Longissinum are all good for this work. Among the Davallias quite a number are admirably adapted for baskets, and also for hanging on blocks of wood or cork. The pretty little D. bullata, or Squirrel's-foot Fern, D. dissecta, D. repens and D. Tyermania are specially adapted for small baskets. The fronds of none of these varieties attain a length of more than a foot, while D. solida, D. elegans polydactyla and D. Mooreana are among the best for large baskets. But among all the species of Ferns there is none quite as desirable for large baskets as the Goniophlebiums. G. chnoodes has beautiful soft pendent fronds, often measuring four feet in length, and G. subauriculatum, often attaining a length of ten feet. Nephrolepis davallioides furcans, with its large arching fronds of robust growth, makes a noble basket-plant. The distinct and beautiful N. Duffii, with its close tufted habit of growth and peculiar character, also serves this purpose well, while N. exaltata and N. pectinata are first-rate for this work. Pillæa ternifolia, a lovely basket species, has elegant pendent fronds about a foot in length. Platyloma flexuosa, with fronds of the same length, is also good.

Peteris scaberula makes a fine little basket-plant, while Woodwardia radicans makes a noble specimen for a large basket.

Plants of the Platycerium, or Stag-horn Fern, make beautiful objects for hanging on blocks of wood or cork. They grow better and show the peculiar form of their fronds to greater advantage this way than any other in which they can be grown. There are several well-marked varieties, the commoner being P. grande and P. alicorne. The former has both upright and drooping fronds, while the latter is entirely upright. Among the rarer kinds are P. Wallichii, with broadly cut rounded fronds, P. biforme and P. Willinckii, with narrower cut fronds, and quite distinct in having the tips of its fronds turned upward.

Tarrytown, N. Y. *William Scott.*

Hardy Perennials.

PLANTS which start into growth as soon as the ground warms in spring must make all preparations for this during the previous autumn, and, therefore, there are very many hardy herbaceous perennials, which, if properly cared for, can be transplanted now to better advantage than at any other season. If we look at the roots of early Anemones, Violas, Trilliums, etc., just before the ground freezes up for winter, we will see that the flower-buds are all well formed and ready to break into growth as soon as the snow is off the next spring, so that it is much better to set the plants early, that they may have time to make their autumnal growth without disturbance. It is much better to lift them as early as the middle of August than to defer this till just before winter, when the fibrous roots, many of which must necessarily be broken, will not have time to recover before they are frost-bound. Of course, in a very dry season like this the ground should be artificially watered at the time of transplanting, so that the plant will have some food to start off with. Pæonies and other coarse-growing plants which have exhausted their soil can

now be divided to advantage, and the roots of the hardy herbaceous Poppies can now be cut up for propagating new stock.

Good growers always recommend the early planting of Lily-bulbs, and Mr. Horsford has asserted in these columns that he prefers to winter them in a cool cellar rather than to set them late. When they are planted early a new growth of fibrous roots is made, and they are thus prepared for an earlier and more vigorous start in the spring. Like many other plants, Lilies are exhausted by bearing seeds, and plants of Lilium Canadense taken up while in flower and replanted are sure to give better flowers the next year than if they had been left to go to seed where they originally stood. Of course, it is a good plan not to allow Lilies to ripen seed; the bulbs will be stronger for it.

Of course, it is desirable to get a supply of spring-flowering bulbs as early as possible, and to get them in the ground before the approach of cold weather. When they are planted late they may flower fairly well the first year, but the following season will show the bad results of delay. They may flower well for once, because the food already stored up in the bulb is used to produce flowers and seed, but unless they have made a good root-growth the year before they have not the power to elaborate and store up material for another year, and will often die or be found diseased if they are examined after the foliage is ripened. In warm places where the plants can make roots all winter this early planting is not so essential, but wherever the earth freezes hard and remains so all winter it is necessary to the continued health of the plant that the bulb should be set in the ground sufficiently early in the autumn to make a good root-growth before severe frosts.

Montclair, N. J. *B.*

Flowering Annuals.

AT this season there is no lack of color in our gardens where a proper use has been made of these plants. The Dwarf Sunflowers, Nasturtiums, China Asters, Marigolds, Coreopsis and many others are very useful when quantities of flowers are needed. Delphinium consolida is still very beautiful, with its long racemes of intense blue flowers, which continue to show themselves in spite of drought. The many beautiful forms of the perennial Larkspurs have pushed this plant aside somewhat, but it deserves a place in every collection of annual flowers. Of course, there are many varieties, double and single, and the colors range through various shades of blue and white and pink, but none are more beautiful than those of a clear deep blue. The China Asters have been changed by selection and crossing till the plants differ as widely in habit as they do in the color and shape of the flowers. One can hardly go amiss in selecting from the approved strains of the best florists whether plants are wanted for bedding or for cutting. As the nights begin to grow cool the single-flowered Dahlias, and especially the dwarf kinds, are beginning to do their best. They come in almost all colors and combinations of colors, and form broad plants hardly more than eighteen inches high, so that they need no stakes, and produce flowers in the greatest profusion.

The practice of sowing the seeds of the hardier annuals in autumn is one to be altogether commended. Those which bloom only once will flower earlier, and with much greater vigor, while those which continue to bloom for a long time, develop into a size which spring-sown seedlings never attain. A plant of Coreopsis Drummondii, for example, will have stems an inch through and cover a space a yard across.

Jamaica, L. I. *M. Arnot.*

In the Shrubbery.—Shrubberies in general have fewer attractions now than at any other season. The time has hardly come for the turning of the leaves, although some of the flowering Currants are already brilliant; and, again, the best season for the great body of those which have showy fruit has not yet arrived, although some of the forms of Pyrus baccata, with their arching branches loaded with miniature apples of the brightest color, are already singularly beautiful. But shrubs in flower are rather rare, and this gives an especial value to those which flower in late August and early September. It is singular that the Heaths of the Old World are not more generally used here, for, if properly cared for in soils which are not of a clayey texture and contain no limestone, they give comparatively little trouble. The common Heather, Caluna vulgaris, is, perhaps, the best for beginners, as it is the most vigorous and has various forms—some with white flowers, some with flowers darker-colored than the type, some with double flowers, and many others of peculiar form—prostrate or erect. The Cornish Heath, Erica vagans, is rather more difficult to deal with; so is the four-leaved Heath, E. tetralis. St. Daboec's Heath, Daboecia polifolia, bears large, dark-colored purple flowers often half an inch long. It is a spreading plant, and the racemes of flowers are borne on long stems above the shining evergreen leaves. It produces flowers for a long time, but most profusely in late summer, when flowers on woody plants are needed, and it is an admirable species for a rockery. Another plant of the Heath family is the Sorrel-tree, Oxydendrum arboreum, which now bears long one-sided panicles or drooping racemes of pure white bell-shaped flowers, a quarter of an inch long. Among other shrubs the Hypericums are, perhaps, the most interesting at this season. You have already given pretty full accounts of the different species, but they are all useful. They are of varied habit, from erect to prostrate. They flower for a long time when few other shrubs are in bloom. The foliage is neat and clean, and they fill a place which no other genus occupies. No doubt, many of the spring-flowering shrubs which have ripened up their wood early on account of the drought will give a second crop of blossoms with the first autumn rains.

Hartford, Conn. *J. Stanton.*

Henderson's Bush Lima Bean.—Three distinct forms of Bush Limas have now been sufficiently long before the public to enable ordinary growers to form a conclusion as to their comparative merits, and I, for one, have decided that Henderson's, taken all in all, is the best. It leads both Burpee's and Dreer's (Kumerles) in time of maturing. Its productiveness is remarkable, and far exceeds that of its rivals, while its habit of persistent bearing is unequaled. The plants are smaller than those of any other variety, and they can, therefore, be set more closely. It is less liable to sport into the climbing or running habit, and is more uniform in its bush habit than the others, while it is quite as hardy and vigorous as either. In fact, it excels in every point but one, and that is that its flavor is not quite as rich, and yet the difference in this respect is so trifling that it hardly weighs against its manifest advantages in other respects.

Montclair, N. J. *Beefield.*

Meetings of Societies.

American Forestry Association.

A SUMMER MEETING of the American Forestry Association, held in conjunction with the session of the American Association for the Advancement of Science, began on Tuesday evening, August 21st, in Brooklyn, New York, with an illustrated lecture on the Battle of the Forest, by B. E. Fernow. Sessions were held in the morning and afternoon of Wednesday, in which several important papers were read and discussed. Mr. Fernow, in an address on the condition of our public timber-lands and forest-reservations, called attention to the necessity of following up the policy of reserving forest-lands, which was inaugurated through the efforts of the American Forestry Association, with measures for their protection and rational use. As the law now stands, the Secretary of the Interior cannot sell timber, but he can give it away. He must refuse the offers of lumbermen to buy timber because he is not empowered to take the money, and there is no adequate check on cutting timber on Government lands. The sentiment of the population near the reservations, which was once favorable to them, is now setting against them, because there are no means for utilizing their products.

At the close of this address Mr. Fernow offered the following resolution, which, after some discussion, was unanimously adopted:

Resolved, That the the American Forestry Association desires to express again, emphatically, its approval of the efforts of the Public Lands Committee of the House of Representatives, and its chairman, the Hon. Thomas C. McRae, for the enactment of a law, providing not only for the care and protection, but also for the rational use, of the timber and other resources in the forest-reservations and on all public timber-lands. The policy of reserving can hardly be considered an advantage to the forestry interests unless followed up by an intelligent and efficient administration of the reservations.

This association emphatically denies that it advocates in the policy of forest-reservations the unintelligent exclusion from use of large territories and the resources contained therein,

but, on the contrary, it reiterates that it conceives the reservations made for the purpose of their rational use under restrictions and control apart from private interests in expectation of possible occupancy. If uncared for by the rightful owner, the Government, the door is opened to greater destruction and depredation than before. We, therefore, desire to impress upon our Representatives in Congress the immediate necessity of making provisions for the better care of the public timber and other resources, as urged heretofore by this association.

We give below portions of two papers read on this occasion, and we shall continue the report in next week's issue.

THE RELATIONS OF INSECTS AND BIRDS TO PRESENT FOREST-CONDITIONS.

A paper on this subject was read by A. D. Hopkins, Entomologist of the West Virginia Experiment Station, from which we have taken the following extracts:

Forests under natural conditions, or, in other words, those unaffected by the advent of civilization, appear to be under the control of certain laws of nature, which govern the vegetable and animal species therein in such a manner that a harmonious balance is usually preserved. No species of the vegetable kingdom is allowed to suffer severely from the undue increase of its enemies in the animal kingdom. Few, if any, species of the animal kingdom become extinct on account of the failure of their food, or from the attack of their natural enemies. A continued battle of the species exists, but it is a war in which none are conquered, and none are conquerors; each species fighting for its existence makes possible the existence of some other species, and thus a balance is preserved.

This may be the rule under natural conditions, and all may go well until the unnatural conditions following the advent of civilization bring about a change. Then nature's laws are broken, obscure species of insects and plants come to the front; others which were formerly abundant disappear. In the confusion certain enemies of plants are for a time exempt from the attack of their enemies, and are left free to commit ravages upon some species of vegetation; others, from a lack of a sufficient supply of their natural food, change their habits and infest plants of an entirely different character, and thus escape for a time their enemies, which had previously kept them within proper bounds; others are introduced from foreign countries, and their enemies have been left behind. They invade our forests unmolested, except by man, until some of their old enemies are introduced, or they acquire new ones here.

When the process of clearing the land commences, new conditions are presented to the forest-insects which are most favorable to their increase. The girdled trees in clearings, the logs, stumps and tops, and the injuries to standing timber by fire, all contribute to their multiplication, some of them changing their habits from that of infesting diseased and dead timber to that of attacking the living, and through their power in numbers they are enabled to kill trees on their own account.

Some ten years ago, when the West Virginia Central and Pittsburgh Railroad was being built through a portion of the Spruce-forests in our state, the timber along the line commenced to die from the attack of insects, and the trouble continued to increase and spread during the next three years until thousands of acres of the finest timber in this state was killed. Only four years ago an invasion of the destructive pine-bark beetle, starting somewhere near the line between West Virginia and Virginia, in Rockingham or Hampshire counties, spread like a conflagration over these two states and adjoining states wherever the Pine grew. The Pine timber on hundreds of square miles was killed, causing a loss of property having a value of more than a million and a half dollars. Similar devastations have taken place in Maine, New York and New Brunswick, and in the forests of Germany and France. Most, if not all, of these destructive invasions were occasioned by unnatural conditions brought about through the influence of man.

Never was there a better time to study the intimate relations of forest-tree insects to certain forest-conditions. Neither can there be a better time to obtain knowledge of the characters and habits of forest-tree insects, with a view of utilizing this knowledge in the future system of forest-management, which must necessarily follow this age of forest-destruction.

Few persons realize the importance of this line of research and the benefits it is possible to derive from a more complete knowledge of the subject. The benefits to be derived from cutting timber at certain times of the year to prevent the attack of destructive wood-infesting insects; the saving of the valuable timber by removing the bark from logs at certain times in the year to protect the wood from insect injuries; the possibilities to be derived from the introduction from other countries of parasitic and predacious species to keep in check our most destructive kinds; the advantage to be gained from a better knowledge of the favorable and unfavorable conditions for the existence of insect pests and of nature's laws in the control of her species—these are examples of some of the lines of work which are worthy of a life-time devotion of many specialists.

With reference to the relation of birds to certain forest conditions, I realize that I will be trespassing upon a sacred faith among our people, that birds are great friends as insect destroyers, when I say that, from my own observations, they have very little, if any, ultimately beneficial influences in the prevention of insect depredations in our forests, however useful they may be against other insects. That insectiverous birds obtain the larger share of their food from the insect world, and that they devour immense numbers of insects and other small forms of animal life, no one can doubt. They are not, however, our friends to the extent that they will devour those only which we look upon as injurious. In truth, they make no choice between those which are beneficial and those which are injurious. They capture alike the parasites of the injurious species, the parasite of the parasite, as well as the injurious species. They merely take the food nature has provided from the ranks of the insect armies of opposing forces, and neither one force or the other thereby gains an advantage. The birds merely fulfill their mission in the economies of nature by exerting their influence in the mutual struggle for existence of animal and vegetable species.

Woodpeckers, which are generally recognized as exercising the greatest benefit to mankind in the destruction of wood-infesting insects, are not so useful as we have been led to suppose. This fact was brought home to me while making investigations with reference to beneficial forest-tree insects in Germany in 1892, where I was seeking for an enemy to introduce against our destructive bark beetles. I determined that a certain species of Clerid beetle was by far the greatest enemy of European bark beetles, and was successful in finding a forest in which they were common. I was surprised, however, to find that the woodpeckers were the greatest enemy of the Clerid. The larvæ, pupæ and adults of this helpful insect had occurred in great numbers in the bark of small Pine-trees that had been broken by snow the previous winter. They had destroyed most of the bark beetles which had infested these trees, and had gone into the outer bark near the base of the tree to make their cocoons in which to pass the winter. It was in those trees only which had escaped the attack of woodpeckers that I succeeded in obtaining specimens. In some places not one infested tree in twenty had escaped the birds, and in those which they had attacked apparently not one Clerid in one hundred had escaped them. This observation led to subsequent investigation of the habits of woodpeckers, and it has been determined that they do not peck holes in the bark of healthy-growing trees (a common habit with some species) to obtain insects, but for the purpose of securing the inner bark and sap for food. I have seen trees that had died on account of the quantity of bark that had thus been removed. I have recently discovered that an injury to the outer sapwood, caused by them while thus engaged, results in a common and quite serious defect in the wood of different kinds of trees. I have also determined that what is known as curly poplar, a curled and wavy condition occurring in the wood of Tulip-trees, is the result of the punctures in the bark made by these birds.

ECONOMIES IN RAILWAY-TIES.

In a most instructive paper on this subject Mr. E. E. Russell Tratman, of the *Engineering News*, stated that an average of one hundred railroad-ties is obtained from an acre of forest, so that twenty-six and a half acres must be cleared to supply 2,640 ties, the number necessary for one mile of new track. To this should be added three and a half acres for ties for renewal for each mile of road. To insure a permanent supply at this rate of consumption there should be maintained 113 acres of growing timber to each mile of track. The total length of railroad tracks in the United States is about 230,000 miles, and with an average of 2,500 ties per mile, 575,000,000 ties are in use, while 75,000,000 to 90,000,000 of ties are annually used for construction and for renewals. For ties and sawed timber for bridges and trestles 500,000,000 cubic feet of round timber are used. This is exclusive of timber used for telegraph-poles, station-buildings, fences, cars and other railroad uses. This consumption represents but a part of the total annual timber-crop and reduction of timber resources due to reckless and

wasteful lumbering methods, to the illegal cutting of timber on Government and private lands, and to destruction by forest-fires. The prompt adoption and firm enforcement of a forestry policy by the Government was strongly urged by Mr. Tratman.

Economy in the use of railroad-ties may be effected (1) by care in the selection and use of new ties. The average cost of renewals of ties on many roads already exceeds that of rail renewals, and is still increasing. (2) By care in the renewal of ties. (3) By preservative treatment. On the Southern Pacific Railroad, which has tie-preserving works of its own, the number of renewals per mile decreased from 243 in 1891 to 240 in 1892 and 205 in 1893, while the requisitions for 1894 amounted only to 145 ties per mile. (4) By protection by metal tie-plates. These tie-plates, although as yet in moderate use, have been found on a line with heavy traffic and with many sharp curves to effect an economy in maintenance expenses of fifty per cent. in ties and seventy-five per cent in labor. Economy in the use of ties in the ways noted results in economy in other directions. First, by increasing the life of the ties the number to be purchased for maintenance is reduced. Second, it enables cheaper and inferior woods to be made longer-lived and practically equal to the ordinarily more expensive and better timber. Third, the maintenance work on the track is reduced, not only by reducing the number of ties to be renewed, but also by lessening the disturbance of the track which such renewals involves. Fourth, the more permanent condition and surface of the track are conducive to greater hauling capacity of the engines and better riding of the cars. In France, for instance, the annual consumption of ties per mile of single track was reduced steadily from 170 ties in 1883 to 84 ties per mile in 1888, due to increased care in selection, improved methods of renewals, the use of the creosoting process and the introduction of better fastenings, better ballast and heavier rails. (5) By substitution of metal for wooden ties. The mileage of track with metal ties in this country is increasing more rapidly than the mileage of new railways, and the manufacture of steel ties may become as important an industry here as it already is in other countries.

Mr. Tratman, who has given long study to the subject of economy in the consumption of timber for railway purposes, and who has already contributed several reports on the subject to the Forestry Division in Washington, concludes that care and economy exercised in regard to railway-ties result in a direct and appreciable financial economy in expenses for track-work and operation.

The Society of American Florists.

THE Society of American Florists held its tenth annual convention at Atlantic City, last week, and elected Edwin Lonsdale, of Philadelphia, President for the ensuing year; William J. Stewart, of Boston, was again chosen Secretary, and H. H. Beatty, of Oil City, Pennsylvania, Treasurer. One point in the address of the retiring President, Mr. Anthony, was a suggestion that the growers of this country might produce new varieties of Roses with the same success that has crowned their efforts to produce new Carnations and Chrysanthemums suitable to American conditions. No doubt, President Anthony is aware that there are now many workers in this field, and that America has already produced some admirable hybrids of Rosa Wichuriana, R. multiflora and R. rugosa. It is true that few Teas, Hybrid Teas or Hybrid Perpetuals have been produced here, but in California there are many experiments to that end now in progress under exceptionally promising conditions of climate. Another recommendation of Mr. Anthony which caused considerable discussion, and which certainly merits attention, was a proposal to establish an examining board whose duty it shall be to grant certificates of proficiency in various branches of floriculture to young persons who should make application for examination. The President suggested that the inquiry should be as diversified as the florist's work, and that there should be separate examination for such specialties as Rose-culture, Orchid-growing, etc. It was argued that in the absence of horticultural schools these certificates would be in the nature of diplomas and would prove advantageous to the working florist, inasmuch as they would set forth with some distinctness the lines in which he was most capable, and they would also relieve employers who wish worthy men and are willing to pay fair wages. Many of the members considered the project impracticable, while others were willing to try the plan, with the impression that if the examining board was composed of capable and impartial men who would award certificates after the most careful consideration some good might be accomplished.

We have only space now for the subjects of the essays read: The first one, by William H. Taplin, of Holmesburg, Pennsylvania, set forth the need of systematic work, organization and education in order to elevate and improve the business of floriculture; Mr. S. P. Matthews, of Boston, Massachusetts, presented a paper on "Comparative Colors in Relation to Flowers," which he illustrated by the use of colored papers and diagrams; Mr. John N. Taylor, of Bayside, New York, described the varieties of Roses which best met the present demands, and discussed the best methods of growing them; Mr. John T. Temple, of Davenport, Iowa, treated the subject of Cannas; Mr. Grove P. Rawson, of Elmira, New York, delivered an extempore address on the "Evolution of the Chrysanthemum," which was voted one of the most brilliant features of the meeting; Mr. William Tricker read an elaborate address on Aquatics, in which he carefully traced the history of the cultivation of these plants in the United States; Mr. Andrew Washburn, of Bloomington, Illinois, read a paper on Successful Violet-culture, while "Fertilizers and their Application" was a subject treated with great care by Robert Simpson, of Cromwell, Connecticut. Many of the papers were of first-rate merit, and we hope to give instructive extracts from them in future numbers.

In connection with the meetings there was an interesting exhibition of flowers and plants and florists' supplies. No doubt, the feature which attracted most attention was the general collection of aquatics displayed by William Tricker & Co. in a large tank on the floor. Especially well-colored flowers of Nelumbium speciosum, one of them on a stalk eight feet long, were shown with clean leaves, the largest of which was forty-two inches in diameter. There were about thirty Nymphæas, including night-bloomers like N. Devoniensis, N. rubro-rosea, a fine flower of N. Sturtevantii, nearly a foot in diameter; N. dentata and N. Smithiana, a new hybrid, sulphur-colored within and pale blush on the outside of the petals, N. delicatissima and N. Deaniana. Among the day-bloomers were Marliac's hybrid, Chromatella, the peach-pink Trickeri, many forms of Nymphæa odorata, including sulphurea, albida, rosea and carnea; N. Laydeckeri rosea; N. tuberosa, with its pink form; varieties of N. Zanzibarensis of excellent form and deep color; N. cerulœa, N. gracilis and its blue form, N. alba candidissima, N. Mexicana, double forms of N. Lotus, N. gigantea, N. pygmæa with its forms alba, Helvola and many more. Besides these there were numerous other water-loving plants and a large bud of Victoria regia, which opened after it had been brought to the exhibition.

Pitcher & Manda's group of ornamental greenhouse plants was noteworthy, and in another hall they had a most interesting collection of hardy herbaceous flowers, including some beautiful Rudbeckias, different species of Liatris, Veronica, Helianthus, Heliopsis and Statice. Cypripedium Charlesworthii was blooming in very fair form and was on exhibition for the first time in this country so far as we are aware.

Mr. W. A. Manda, of South Orange, had an interesting show of Ivies, Orchids, Palms, and a new Fern, which is a neat variety of Adiantum Capillus-Veneris, called Imbricata, which resembled in the shape and airy grace of its fronds Adiantum Farleyense. No doubt, the variety will prove useful on account of its hardy qualities.

Mr. Charles D. Ball, of Holmesburg, Pennsylvania, showed an attractive assortment of Palms, Cycas, Ficus, Pandanus, etc., of usual trade sizes, and Robert Craig also had a meritorious exhibition, among which the Crotons, grown out-of-doors, were exceptionally well done. The Phlox of Ellwanger & Barry; Mr. John N. May's new Rose, Mrs. Whitney; a large collection of Canna blooms, in dishes of sand, exhibited by Dreer, of Philadelphia; a good collection of Orchids and other plants, including fine specimens of Licuala grandis from Messrs. Siebrecht & Wadley; Meteor Roses from F. R. Pierson, of Tarrytown, New York, and the group of potted hybrid Perpetual Roses, from Storrs, Harrison & Co., were all noteworthy exhibits.

The report of the Nomenclature Committee, of which Professor Trelease is chairman, was very satisfactory because so few examples of misnaming plants in commercial lists were cited. The Carnation now sold as Lady Emma seems to be Portia, and the variety sent out this year as Bouton d'Or is Baron de Rothschild. The confusion among Chrysanthemums seems in a fair way of settlement, and among numerous new Cannas the only case of duplicate names given is that of Antoine Barton for Florence Vaughan. No doubt, the influence of the committee's inquiry has largely aided in the correction of errors.

Notes.

Mr. J. H. Hale gives it as his opinion that the Japanese plums will in a few years revolutionize Plum-cultivation in Connecticut, and that this delicious fruit will become as abundant and cheap in the home and the market as apples or peaches.

During the long drought good plants of Rosa rugosa have shown a few flowers every day, while the foliage holds its dark rich green color just as if the weather was most propitious. Occasionally a plant of R. rugosa is seen in which the flowers are inferior in color and by no means as abundant as in the best plants. There is little doubt that hybrids of some inferior variety have been put on the market as R. rugosa, and planters should be careful in selecting their stock.

The Currant, President Wilder, is considered by Mr. S. D. Willard as the most productive variety he has tried. It is a seedling of Versailles, better in quality than the Fay, and having large berries in good clusters. *The Country Gentleman*, in reporting on some specimens of the best varieties of currants sent by Mr. Willard, pronounces the White Imperial as equal in size to the White Grape, and altogether surpassing it in sweetness. Moore's Ruby is commended for a late table currant.

It is a pity that Linaria vulgaris, the common Butter-and-Eggs of every field and roadside, is such a troublesome weed that no one can be induced to admire it. The pale leaves surmounted by a dense raceme of orange-yellow flowers, with paler lemon-colored tips, are quite as handsome as those of many Antirrhinums, with which it is closely connected botanically, and then, when everything else is dried up, it seems to revel in these adverse conditions, so that, if anything, it is now rather more showy than usual.

The first train-load of California fruit shipped direct to London this year reached that city on schedule time last Wednesday. There were ten car-loads, comprising 45,000 packages, mainly Bartlett pears. The entire cost of transportation is $700.00 a car-load, $75.00 more than the cost from the Pacific coast to this city, making an average cost of seventy cents for each package. Other train-loads are now in transit to England, consisting of pears, peaches, plums, apricots and grapes. Cable reports of the first sale are hardly satisfactory to the growers, the main part of the shipment of pears having realized from $1.00 to $1.50 a box, which is no more than the same fruit commands in this city. A small part of the cargo in green condition brought, however, as much as $3.00 a box, and the success of these long-distance shipments seems to depend in large measure on having the fruit reach its destination before it is over-ripe.

A correspondent of *The Country Gentleman* speaks of a Scuppernong Grape-vine from which forty bushels of grapes have been sold for two successive years, and it is probable that it will produce fifty bushels this year. The vine is trained over an arbor some twenty-five feet long by eighteen feet wide, and it is a foot in diameter at the ground. This is not at all an uncommon size, and a vine might easily cover an area of 2,000 square feet. The Scuppernong will not thrive north of thirty-seven degrees of latitude, but it is well known as a thick-skinned grape which keeps well and can be shipped long distances. It has a peculiar flavor, which is not disagreeable to many people, and it makes an acceptable wine. It reaches its best development in south-eastern Virginia and north-eastern Carolina, where it runs wild and often climbs forty feet or more into tree-tops. If allowed to grow with no pruning or care, except a trellis or something to run upon, it will usually give fair crops.

According to the Government report for August 1st, the general average of the potato-crop for the entire country fell from 92.3 per cent. on July 1st to 74 per cent. at the close of the month. This is the lowest average condition of the potato-crop ever reported, the general average at the same time last year being 84 per cent. In the principal potato-growing states which usually supply the chief distributing markets in the middle-western and eastern states, the average production this year will be even lower than the general average for the whole country in other years. Thirteen of these states now show an average crop of 66 per cent., as against 83.6 last year. The yield of New Jersey, for example, is rated at but 53 per cent. this year, for 69 per cent. in 1893; in Ohio there is a decrease of 12 per cent. from last year; in Illinois 17 per cent., and in Iowa 53 per cent. Potatoes now bring, at wholesale in the markets of this city, $1.75 and $2.00 a barrel, an advance of fifty cents a barrel within the past month. The present supply comes from New Jersey and Long Island. While the home crop has been thus shortened by drought, the late crop in the United Kingdom is rated at 92.8.

In one of the meetings of the American Forestry Association held in Brooklyn last week, Dr. Horace C. Hovey, of Newburyport, Massachusetts, showed by specimens and by views the petrified forests of Arizona. This great tract of agatized wood, at least 2,000 acres in extent, is near the stations of Corrizo and Adamanna, on the Atlantic and Pacific Railroad, in Arizona, and resembles an immense logging-camp with huge trunks thrown about. The largest are ten feet in diameter, many of them severed as evenly as though cut up by a cross-cut saw, and the sections vary from disks like cart-wheels to logs thirty and more feet long. Many of the petrified logs have been broken into glittering fragments by action of the weather and by Indians and tourists, and at every foot-fall the traveler steps upon a mosaic of cornelian, agate, jasper, topaz, onyx and amethyst. A petrified trunk 150 feet long spans a cañon, and is known as the Agate Bridge. The name Chalcedony Park has been given to the tract. Curiosity-hunters, manufacturers and speculators are rapidly destroying its beauties, and recently a company proceeded to pulverize the chips and logs, the powder to be used in place of emery. Car-loads of the petrified wood are being shipped away for this use, and Dr. Hovey advocates the saving and protection of these dead forests in a public reservation by the Government.

With Mount Pleasant Park, in Halifax, Nova Scotia, a natural woodland of undisturbed beauty extending along the magnificent harbor of that city, Victoria Park, in the town of Truro, ranks as the most distinctive and beautiful of natural parks in Nova Scotia. Founded eight years ago on the occasion of the Queen's Jubilee, by donations of land from seven citizens, one hundred acres of wooded ravine were thus acquired. The entrance is a wide open park space, which soon narrows to a shaded walk beside a brook. A succession of six waterfalls extends through the mile of park, the largest cascade, known as the Joe Howe Falls, being, perhaps, thirty-five feet high. Four miles of paths and walks lead through the densely wooded hill-sides and afford views of the precipitous opposite side of the ravine, one hundred feet high. In narrow side gorges, extending at right angles, springs have been opened up, and here the heavy cold air under the perpetual shade of dense Spruces and Firs, is twelve to fifteen degrees lower even than in more open parts of this charming rustic woodland. A carriage-road, three miles long, encircles the outer edge of the park on the plateau high above the ravine. This driveway overlooks Truro and many miles of rich agricultural country, and to the northward the head-waters of Cobequid Bay, the limit of the Bay of Fundy tides. The park is unspoiled woodland, and we hope that the utmost caution will be used in developing it so that its true spirit will be preserved, especially against the intrusion of any ornamentation or construction, beyond that which is necessary to make its natural beauties available.

Dispatches from the interior of New York state report plums and pears so plentiful that they will scarcely pay for the packing and shipping, and surprisingly large quantities of these fruits are seen in all the wholesale fruit markets here. Bartlett and Flemish Beauty pears may be bought for $1.50 to $2.50 a barrel, a dollar more being asked for Seckel pears, while Belle, Lucrative and Catherine are offered at $1.75 to $2.00, and Clapp's Favorite at $2.00 to $2.50 a barrel. Purple Egg plums, Greengages and Damsons are as low as $2.00 a barrel, and these are also offered in kegs and baskets at proportionate rates. German prunes, a large and fleshy fruit, sell at thirty cents for an eight-pound basket. Plentiful supplies of grapes are here from Virginia and the states northward, including Concord, Champion, Moore's Early, Worden, Delaware and Niagara from this state. Retail prices now range from twenty cents for a five-pound basket of Champions to sixty cents for the same quantity of Delawares. Much of this fruit is hurried to market before it is fully ripened, with the result of poor flavor and quality. The best New Jersey peaches were offered last Saturday at $1.50 a basket, and smaller fruit could be had at seventy-five cents. Besides the large and varied supply of fruits from near-by localities, 115 car-loads from California were sold here last week. Among peaches Early Crawford, Late Crawford, Wheatland, Susquehanna, Foster and Muir brought the highest prices. California plums included large shipments of Gros prunes, and these, with German prunes, Kelsey and Fellenberg plums, brought an average of $1.50 a box. Botan, Victoria, French, Bulgarian and Coe's Golden Drop are among the many varieties now seen here.